resulting in cost-effectiveness different to that of younger cohorts that receive the complete intervention: multi-cohort models can include both these “complete” and “partial” cohorts. Some multi-cohort models described as population models impose finite time horizons at which the intervention is assumed to cease, although health effects are typically assessed until death. ANALYSIS: If cost-effectiveness differs between partial and complete cohorts, then the overall cost-effectiveness estimate from a multi-cohort model will depend on the relative numbers of partial and complete cohorts. The total number of complete cohorts depends on how long the intervention is used, which is uncertain. Therefore, the overall estimate may depend, in part, on the number of future cohorts assumed. The appropriateness of time horizons depends on whether a cross-sectional or a longitudinal cohort approach is used. Assuming an intervention ceases at a time horizon is unrepresentative of actual implementation and may result in biased cost-effectiveness estimates for cartilage injuries. CONCLUSION: Multi-cohort modeling is advocated as being more representative of actual implementation. However, a single cost-effectiveness estimate for multiple cohorts necessarily implies an aggregation of estimates. Such aggregation leaves estimates sensitive to assumptions of the number of cohorts included, can hide useful information, and lead to nonoptimal policy choices. We suggest cost-effectiveness estimates for the complete and incomplete cohorts should not be aggregated, but reported separately. Implementation time horizons should not be used in longitudinal cohort-based modeling in cost-effectiveness analysis.

B3

COMMON AND AVOIDABLE ERRORS IN ECONOMIC MODELING: A REVIEW OF THE FREQUENCY AND IMPACT OF MODELING MISTAKES

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BACKGROUND: Cost-effectiveness models are often used to predict the costs and health outcomes that are likely to be associated with various different interventions. Models are a useful tool for representing the detailed and complex “real world” in a manageable and understandable structure. Whist simple models do not claim to necessarily create an exact replica of the real world, they can be useful in demonstrating the relationships and interactions between various different factors. However, developers of models often consciously, and unconsciously, make assumptions that are avoidable and which can significantly affect the results of a model. METHODS: A review was undertaken on a random selection of published models in different disease areas to aim to identify the frequency of typical “errors” in economic models. In addition, a simple model was developed and used to explore the relative impact of different types of errors in models. Each type of error was examined for its likely impact on the model’s overall findings and conclusions. This helped to gain a greater understanding of both the frequency of different errors and their magnitude of effect. RESULTS: Mistakes are commonly observed in economic models. These were often due to limitations in scope of the model, but all were found to be avoidable given unlimited time and data availability. As well as identifying “major” errors in models, the review also identified many common errors, such as excluding “hall cycle correction,” that often have very little impact on a model’s results, relative to other common errors. CONCLUSIONS: While many errors in economic models are frequent, many errors often go unnoticed and have significant impact upon a model’s results. This analysis has highlighted the relative importance of each type of error and have provided suggestions as to how these might be avoided.

B4

ARE SECOND OPINIONS OBJECTIVE? BIASES IN SECOND-OPINION CONSULTATIONS


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OBJECTIVES: Discrepancies in diagnosis, treatment, or prognosis may emerge among physicians. A known decision-making bias is the tendency to shift personal opinion either toward or away from a previous opinion. We sought to evaluate such biases in the context of second-opinion medical consultations. METHODS: We distributed a survey questionnaire to a nationwide sample of orthopedic surgeons and neurologists. The questionnaires presented eight scenarios, each with conventional treatment options with no clear-cut preference. In four scenarios, the physicians were told that a previous opinion had already been given by another physician, or that a second opinion would be given, and the other four scenarios were used as controls. The physicians’ responses were coded according to the level of intervention (conservative to interventional). RESULTS: 172 orthopedic surgeons and 160 neurologists filled out the questionnaires, which represent about 50% of these specialties in Israel. In the orthopedic scenarios, when a first opinion was already given, there was a shift toward a more interventionist treatment (P < 0.05). This was especially prominent when the first opinion was known to the second physician. When the patient intended to seek a second opinion, there was a shift toward a more conservative treatment. No such effect was found among neurologists. CONCLUSIONS: Physicians’ judgments may be affected by another physician’s opinion (compared to their choices without a first opinion). This bias mainly tends toward a more interventionist treatment. Due to the immense impact of any decision on patient health and resource use, further research should address such biases and develop tools to address them.